

REMARKS

Claim Rejections

Claims 3, 5, 10, 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Claims 1, 3-7, 9, 13, 14 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent #6,237,303 to ALLEN et al. Claims 2, 5 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent #6,237,303 to ALLEN et al. in view of US Patent #6,012,256 to ASCHHEIM.

Drawings

It is noted that the Examiner has accepted the drawings as originally filed with this application.

Claim Amendments

By this Amendment, Applicant has amended claims 3, 5, 10, and 11 of this application, in order to overcome the Examiner's rejections under 35 U.S.C. §112, second paragraph. It is believed that the amended claims specifically set forth each element of Applicant's invention in full compliance with 35 U.S.C. § 112, and define subject matter that is patentably distinguishable over the cited prior art, taken individually or in combination.

Applicant's claims are directed toward: a bending moment resistant structure, comprising: a plurality of supported members, each of the supported members having two ends with at least one of the two ends being joined to a connection element at a joint in a way of moment resistance; a plurality of supporting members, each of the supporting members having two ends with one of the two ends being joined to the connection element at the joint in a way of moment resistance and another one of the two ends being disposed at a support spot of the respective supported member, which endures moment and generates deformation; whereby, ***once the structure is subjected to a load and the supported member endures moment, the supporting member contacts the supported member at the support spot with a situation of the supporting member against the deflection of the supported member such that the supporting member and the supported member occur a respective action exerting to each other with the action to the***

supporting member resulting in the joint enduring a bending moment and intensifying a bending moment resistance at the joint and the action to the supported member reducing a bending moment of the supported member at the support spot and a bending moment value at the joint becoming uniform.

Other embodiments of the present invention include: the above structure, wherein the supported member is a ***hollow member*** with a cross section selected from a round tube, a square tube, a composite member, an assembled member and a box girder member and the supporting member has a shape corresponding the supported member and is received in the supported member.

As shown in Fig. 9, Allen et al. teach a column 100 connected to a beam 102 at a connection 104. The Examiner has admitted on p. 3 of the outstanding Office Action, that the reference “does not explicitly detail that his members contact.” The Examiner then argues that the use of slot 136 would result in some minimal amount of contact. In response, Applicant does not acquiesce to this characterization and, in any event, notes that this “contacting” structure does not teach or suggest Applicant’s recited relationship and configuration. Namely, Allen et al. does not teach or suggest: a bending moment resistant structure configured so that once the structure is subjected to a load and the supported member endures moment, the supporting member contacts the supported member at the support spot with a situation of the supporting member against the deflection of the supported member such that the supporting member and the supported member occur a respective action exerting to each other with the action to the supporting member resulting in the joint enduring a bending moment and intensifying a bending moment resistance at the joint and the action to the supported member reducing a bending moment of the supported member at the support spot and a bending moment value at the joint becoming uniform.

Furthermore, Allen et al.’s beam (102) and column (100) are not the same in function and position as the present case as shown in Applicant’s Fig. 2A. Applicant teaches that, by using the supporting members (29), when the structure is subjected to loads and the supported member (25) generates deflection due to bending moments, the supporting members resist deflections at support spots, and the supported member and the supporting members exert forces to each other.

Joints of the supporting members and the connection elements thereby produce bending moments due to the forces exerting the supporting members so as to intensify the frame at the joints against the bending moments. The forces exerted on the supported member make the supported member at the supports spots and joints with the joining members be subjected to more uniform bending moments (See, e.g., Fig. 3C) so as to weaken shear stress of the supported member 25 at the joints.

Fig. 9 in the research report (Attachment A) is a moment chart obtained from one single span cross-bearing by means of an analysis through SAP2000 software, in which the horizontal bar is constructed in accordance with the present invention; the moment at both ends is reduced as illustrated in Fig. 3C in the specification of the present invention (See, also, p. 14, ll. 7-23).

The Examiner has also cited Aschheim, on p. 4 of the outstanding Office Action, as teaching "a structure with hollow supported and supporting members (3)." However, as clearly shown in Figs. 2-17, the reference is directed towards a web 4 having one or more voids 6a-6f. In addition, Applicant submits that the criticality of this arrangement is clearly shown by the performance of these hollow members as outlined in [0052-0062] describing Figs. 4a-4b, and 5a-5b.

In view of the above showing of criticality, Applicant respectfully submits that the Examiner must now either withdraw the rejection of claim 2 under 35 U.S.C. § 103(a) OR make a showing of a prima facie case of obviousness by citing teaching from the art which teach each and every features of Applicant's recited invention, as well as providing a motivation or suggestion from the art to combine such teachings.

In any event, Aschheim does not provide the above noted deficiencies of Allen et al. with regard to claim 1. As a result, even if the teachings of Aschheim and Allen et al. were combined, as suggested by the Examiner, the resultant combination does not suggest: a bending moment resistant structure, comprising: a plurality of supported members, each of the supported members having two ends with at least one of the two ends being joined to a connection element at a joint in a way of moment resistance; a plurality of supporting members, each of the supporting members having two ends with one of the two ends being joined to the

connection element at the joint in a way of moment resistance and another one of the two ends being disposed at a support spot of the respective supported member, which endures moment and generates deformation; whereby, once the structure is subjected to a load and the supported member endures moment, the supporting member contacts the supported member at the support spot with a situation of the supporting member against the deflection of the supported member such that the supporting member and the supported member occur a respective action exerting to each other with the action to the supporting member resulting in the joint enduring a bending moment and intensifying a bending moment resistance at the joint and the action to the supported member reducing a bending moment of the supported member at the support spot and a bending moment value at the joint becoming uniform.

Nor does the combination suggest: the above structure, wherein the supported member is a hollow member with a cross section selected from a round tube, a square tube, a composite member, an assembled member and a box girder member and the supporting member has a shape corresponding the supported member and is received in the supported member.

It is a basic principle of U.S. patent law that it is improper to arbitrarily pick and choose prior art patents and combine selected portions of the selected patents on the basis of Applicant's disclosure to create a hypothetical combination which allegedly renders a claim obvious, unless there is some direction in the selected prior art patents to combine the selected teachings in a manner so as to negate the patentability of the claimed subject matter. This principle was enunciated over 40 years ago by the Court of Customs and Patent Appeals in In re Rothermel and Waddell, 125 USPQ 328 (CCPA 1960) wherein the court stated, at page 331:

The examiner and the board in rejecting the appealed claims did so by what appears to us to be a piecemeal reconstruction of the prior art patents in the light of appellants' disclosure. ... It is easy now to attribute to this prior art the knowledge which was first made available by appellants and then to assume that it would have been obvious to one having the ordinary skill in the art to make these suggested reconstructions. While such a reconstruction of the art may be an

alluring way to rationalize a rejection of the claims, it is not the type of rejection which the statute authorizes.

The same conclusion was later reached by the Court of Appeals for the Federal Circuit in Orthopedic Equipment Company Inc. v. United States, 217 USPQ 193 (Fed.Cir. 1983). In that decision, the court stated, at page 199:

As has been previously explained, the available art shows each of the elements of the claims in suit. Armed with this information, would it then be non-obvious to this person of ordinary skill in the art to coordinate these elements in the same manner as the claims in suit? The difficulty which attaches to all honest attempts to answer this question can be attributed to the strong temptation to rely on hindsight while undertaking this evaluation. It is wrong to use the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit. Monday morning quarterbacking is quite improper when resolving the question of non-obviousness in a court of law.

In In re Geiger, 2 USPQ2d, 1276 (Fed.Cir. 1987) the court stated, at page 1278:

We agree with appellant that the PTO has failed to establish a *prima facie* case of obviousness. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching suggestion or incentive supporting the combination.

Applicant submits that there is not the slightest suggestion in either Aschheim or Allen et al. that their respective teachings may be combined as suggested by the Examiner. Case law is clear that, absent any such teaching or suggestion in the prior art, such a combination cannot be made under 35 U.S.C. § 103.

Neither Aschheim nor Allen et al. disclose, or suggest a modification of their specifically disclosed structures that would lead one having ordinary skill in the art

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to arrive at Applicant's claimed structure. Applicant hereby respectfully submits that no combination of the cited prior art renders obvious Applicant's claims.

Summary

In view of the foregoing amendments and remarks, Applicant submits that this application is now in condition for allowance and such action is respectfully requested. Should any points remain in issue, which the Examiner feels could best be resolved by either a personal or a telephone interview, it is urged that Applicant's local attorney be contacted at the exchange listed below.

Respectfully submitted,

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By:



Demian K. Jackson

Reg. No. 57,551

TROXELL LAW OFFICE PLLC
5205 Leesburg Pike, Suite 1404
Falls Church, Virginia 22041
Telephone: 703 575-2711
Telefax: 703 575-2707

CUSTOMER NUMBER: 40144